REMARKS

The claims have been amended to more clearly and explicitly define the present invention. The disclosure and drawings have also been amended to address the Examiner's objections as outlined below.

(I)   SPECIFICATION

The Examiner had objected to the abstract as exceeding the limit of 150 words. The abstract has been amended to be fewer than 150 words as requested by the Examiner.

A clean copy of the revised abstract is enclosed as a separate page.

On a separate point, the Official Draftsperson had objected to several of the drawings on the basis that the lines were not uniformly thick. The drawings have been amended to address the objections raised in the Notice of Draftsperson's Patent Drawing Review.

(II)   CLAIM REJECTIONS - 35 USC § 112

The Office Action rejected claims 1 to 23 as being indefinite for failing to particularly point out and distinctly claim the subject matter on the basis that three terms lacked antecedent bases as follows:

(i)   "the task starters" (claim 1, last line)

(ii)   "the task" (claim 11, line 3 and claim 18, line 3)

(iii)   "the resource manager" (claim 22, lines 2-3)

The claims have been amended to more clearly and explicitly define the present invention and address the Examiner's indefiniteness objections. In particular, with respect to the first objection (i), claim 1 has been amended at the last line to replace "for receiving the process identifier of the tasks from the task starters" with --for receiving the process identifier of <u>each</u>

task from the <u>associated</u> task starter[s]--. It is respectfully submitted that there is support for the phrase "each task from the associated task starter" in claim 1. Therefore, it is respectfully submitted that there is clearly support for this phrase in claim 1.

With respect to the objection to the term "the task" in claim 11, line 3 and claim 18, line 3, these claims have been amended to more clearly and explicitly define the present invention by reciting --each parallel job comprising multiple tasks, each task executable in parallel by separate resources to produce an exit status for the task--. It is respectfully submitted that in view of this amendment, the phrase "an exit status for the task" clearly has antecedent support.

With respect to the objection to the phrase "the resource manager" appearing at the last two lines of claim 23, it is respectfully noted that claim 23 is directly or indirectly dependent from claim 1. Claim 1 at line 3 refers to, amongst other things, the system comprising "a resource manager". Therefore, it is respectfully submitted that the phrase "the resource manager" appearing in claim 23 has an antecedent support in claim 1. Of course, if the Examiner has an alternate view, the Examiner is invited to contact the undersigned at (416) 961-5000 ext. 313 to discuss any further amendments the Examiner may desire.

(III)   <u>CLAIM REJECTIONS - 35 USC § 102</u>

The Examiner had objected to claims 11 to 16 and 18 as being anticipated in view of one of the cited references, namely Pulsipher, et al. (Pub. No.: US 2003/012078 A1). The Examiner is respectfully requested to reconsider and withdraw this objection at least for the following reasons.

According to MPEP, Section 2131 "a claim is anticipated <u>only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference</u>." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in <u>as complete detail</u> as is contained in the ...claim" *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9

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USPQ2d 1913. 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910, F2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Present independent claim 18 recites, amongst other things, "a task starter associated with each task, each task starter commencing, on an associated resource, the tasks sent from the resource manager, collecting a process identifier from the associated resource, and sending the process identifier of the task to the resource manager." To better interpret the scope of present 18, reference should be made to the specification of the application, which principle of claim interpretation has been recently re-affirmed in the recent decision of *Philips v. AWH Corporation*, No. 03-1269 (Fed. Cir. July 12, 2005) (en banc). With reference to the present specification, it is respectfully noted that the process identifier "will generally be generated by the resource 6 and the operating system and/or the task 4 upon starting a task 4 on a resource 6. For the Examiner's convenience, paragraph [0030] of the *present* application is reproduced below:

> **[0030]** Upon starting a task 4 on a resource 6, a process identifier "pid" will be generated for the task 4. The process identifier "pid" will generally be generated by the resource 6, the operating system and/or the task 4. In starting the task 4 on the resource 6, the task starter 220 can obtain the process identifier "pid" for the task 4. In addition, when the task 4 exits, the task starter 220 will have the exit status 41, and preferably resource usage, of the task 4. This information can be published by the task starter 220 to any processing element, including the PAM 240. [emphases added]

The process identifier "pid" can then be used by the resource manager (PAM 240) to more easily manage the resource 6 executing the task 4. For instance, by receiving a process identifier from the task starter 220, the PAM 240 has confirmation that a task 4 has been received by the appropriate task starter 220, and, that the resource is executing the task 4. Furthermore, by having the process identifier, the (PAM 240) has the information necessary to directly control the task, such as to stop, resume or kill the task 4. Furthermore, the process identifier will also assist the PAM 240 of the present invention to collect the exit status of the task 4 [see paragraph [0046] of the present application].

In direct contrast, it is respectfully submitted that the Pulsipher does <u>not</u> teach, suggest or disclose collecting the <u>process identifier</u> in any way whatsoever. The Pulsipher reference does <u>not</u> teach, suggest or disclose that any element, including the task server 806, collects a process identifier as referred to in the present specification. Moreover, there is no disclosure, suggestion or teaching in Pulsipher that a process identifier is sent by any element, including the task servers 806, to the resource manager.

Furthermore, it is respectfully submitted that the job server 806 may represent one or more multiple group tasks and therefore each job server 806 is <u>not</u> "associated with each task" as is the case with each task server 220 disclosed in the present application and as recited in present claim 18. Rather, referring to paragraph [0186] of the Pulsipher reference, it is clear that the task server 806 is used to represent an underlying group of tasks and therefore the task server 806 of the Pulsipher reference can <u>not</u> be considered to be associated with <u>each task</u> and moreover can <u>not</u> be considered to collect a process identifier from the associated resource for the <u>associated task</u> as the task server 806 may be associated with more than one task, which features are recited in claim 18 with respect to the task starter.

In this regard, reference is respectfully made to paragraphs [0186] and [0187] of the Pulsipher which are reproduced below for the Examiner's convenience.

[0186] When the job server 804 encounters an executable task command in an input file 102 (FIG. 1) embodying a work request, the job server 804 passes <u>a command to a distributed resource management application 106</u>, essentially requesting the application 106 find a processor on a server farm 108 (FIG. 1) on which to execute the task command, as depicted as <u>process 856</u>. The command passed to the management application 106 requests submission of a <u>task server 806, which represents one or multiple grouped tasks</u>, to the server farm 108 (FIG. 1). Each task server 806 consists of <u>the same exectasks command, along with a job ID</u>. [emphases added]

[0187] The management application 106 serves a dispatching function by submitting a task server 806 to a processor on the server farm 108, depicted as process 858. Submission of the task server 806 causes communication back to the <u>job server 804</u> via the task server 806, depicted as process 860. The task server 806 includes a pointer back to a proxy at the job server 804, which points to the real

object on the job server 804. Thus, process 860 <u>essentially asks the job server 804</u> <u>what to do to execute the task commands associated with the job ID submitted</u> with the _exectasks command, i.e., task server 806. Task server 806 objects are instantiated during the process 860 when the _exectasks <u>command begins to run,</u> <u>by establishing a connection to the job server 804, i.e., the job object identified by</u> <u>the job ID</u>. [emphases added]

As clearly indicated by these passages of the Pulsipher reference, which were also referred to in the Office Action, the task server 806 will represent "<u>one or more multiple grouped</u> <u>tasks</u>" and therefore the task server 806 can <u>not</u> be considered to be <u>associated with each task</u> as recited in present independent claim 18. In addition, it is respectfully submitted that the task server 806 "consists of the same_exectasks command, along with a job ID", but there is <u>no</u> <u>reference of a process identifier</u>.

In addition, as also stated in paragraph [0187], "the task server 806 objects are instantiated during the process 860 when the _exectasks command begins to run, by establishing a connection to the job server 804, i.e., <u>the job object identified by the job ID</u>". Paragraph [0183] of the Pulsipher reference clearly states that "once a job server 804 is instantiated for a work request, the job server 802 <u>passes a job ID</u> back to the client 801 for reference, depicted as process 853". Therefore, <u>the job ID of Pulsipher is created by the job server 804 and identifies</u> <u>the job ID</u>. Therefore, the job ID can <u>not</u> be considered equivalent to the process identifier as it relates to a <u>job</u> and not the individual task and moreover is <u>not generated upon starting a task on</u> <u>a resource, as is the case with the process identifier, but rather is generated once a job server 804</u> <u>is instantiated for a work request</u>. Therefore, there is no equivalent in the Pulsipher reference to a process identifier as defined in the present application. In addition, the task server 806 in the Pulsipher reference can <u>not</u> be considered to collect a process identifier from the associated resource as recited by the present claims at least because the Pulsipher reference does <u>not</u> refer to a process identifier at all. In addition, the Pulsipher reference states that "the task server 806 consists of the same _exectasks command, along with a <u>job ID</u>" rather than a process identifier as defined by the present specification. The process identifier as defined by the present specification is completely different from the job ID as defined by the Pulsipher reference.

Therefore, it is respectfully submitted that the Pulsipher references does <u>not</u> teach, suggest or disclose the subject matter defined by the present claims at least for this reason.

In addition, as stated in paragraph [0187], while the process 860 causes communication back to the job server 804 via the task server 806, there is no indication that this communication is to the distributed resource management application (Figure 8), nor <u>that this communication</u> includes <u>a process identifier</u>. In fact, the process 860 could <u>not</u> involve a process identifier as defined by the present specification at least because the communication depicted as process 860 occurs upon <u>submission</u> of the task server 806, while the process identifier as described in the present specification is created <u>upon the starting of a task 4 on a resource 6</u>.

Moreover, the Pulsipher reference does <u>not</u> teach, suggest or disclose the advantages of the present invention. These advantages, for instance, include that the parallel application manager PAM 240 of the present application has the process identifier and can use the process identifier to control execution of each individual task 4 even though the parallel application manager PAM 240 did <u>not</u> start the task 4 on the resource 6. Moreover, if the task 4 being executed in the resource 6 was not being executed properly, the parallel application manager PAM would not receive a process identifier for a task 4 from the associated task starter 220, and the parallel application manager PAM of the present invention would be aware that a problem has arisen with the execution of the task 4, as further disclosed in the present disclosure. The Pulsipher reference does <u>not</u> teach, suggest or disclose any of these advantages.

Accordingly, at least for the above reasons, the Pulsipher reference does <u>not</u> teach, suggest or disclose the features of the present invention as defined in present claim 18. In particular, the Pulsipher reference does <u>not</u> teach, suggest or disclose any element that collects a process identifier as defined by the present specification, and that sends this process identifier to the resource manager. Moreover, the Pulsipher reference does <u>not</u> teach, suggest or disclose a task starter which is <u>associated with each task,</u> each task starter commencing, on an associated resource, the tasks sent from the resource manager and <u>collecting the process identifier from the associated resource,</u> as recited in present claim 18. Moreover, the Pulsipher reference does <u>not</u>

teach, suggest or disclose the advantages of the process identifier being sent to the resource manager at least because the Pulsipher reference.

As claims 19, 20, 21 and 22 are directly or indirectly dependent from present claim 18, it is respectfully submitted that these claims define patentably distinguishable subject matter at least for this reason also.

It is respectfully submitted that claim 11 recites the feature of "for each task, dispatching the task together with an associated task starter from the resource manager to a selected resource for execution of the task; for each task starter, collecting a process identifier of the task being executed from the resources; and for each task starter; sending the process identifier to an external event unit associated with the resource manager". Therefore, it is respectfully submitted that claim 11, clearly recites that each task is dispatched together with an associated task starter from the resource manager to a selected resource for execution of the task and that the task starter collects a process identifier of the task being executed from the resources. As discussed above with respect to claim 18, it is respectfully submitted that the Pulsipher reference does not teach, suggest or disclose any features or aspects relating to a process identifier as defined in the specification of the present application. At best, the Pulsipher reference discloses a task server 806, but the Pulsipher reference does not teach, suggest or disclose that the task server 806 collects the process identifier and sends the process identifier to the distributed resource management application 106. Moreover, the Pulsipher reference discloses that the task server 806 consists of an execution task command along with a job ID, which is completely different from the process identifier as defined by the specification of the present application. At best, in architecture of the Pulsipher reference, the task server 806 discloses an architecture which will group the tasks of a parallel job into one job request and the task server 806 is used to represent this group of tasks which communicate back to the work control and management layer 104 to execute the tasks on the given resource selected by the distributed resource management application 106. However, the Pulsipher reference does not teach, suggest or disclose the features recited by present claim 11, such as "for each task, dispatching the task together with an associated task starter from the resource manager to a

selected resource for execution of the task; <u>for each task starter, collecting a process identifier of the task being executed from the resources</u>; and for each <u>task starter</u>; sending the process identifier to an external event unit associated with the resource manager". Accordingly, it is respectfully submitted that present claim 11 defines patentably distinguishable features in view of the Pulsipher reference at least for these reasons.

As claims 12, 13, 14, 15 and 16 are directly or indirectly dependent from claim 1, it is respectfully submitted that these claims define patentably distinguishable features at least for this reason also. Furthermore, it is respectfully submitted that, at least with respect to present claim 12, the Pulsipher reference does <u>not</u> teach, suggest or disclose the features of "sending the portion of the command instruction with the process identifier from each task starter to the external event unit" at least because the Pulsipher reference does <u>not</u> teach, suggest or disclose collecting or sending the process identifier from each task server 806 to the distributed resource management application 106.

In addition, with respect to claim 13, it is respectfully submitted that the Pulsipher reference does <u>not</u> teach, suggest or disclose that the starters "send the process identifiers of the task to the location identified by the command instructions upon commencement of the execution of the task" at least because the Pulsipher reference does <u>not</u> teach, suggest or disclose that the task servers 806 collect the process identifiers and send the process identifiers to any location. Moreover, the Pulsipher reference does <u>not</u> teach, suggest or disclose that the command instructions identify any location to send the process identifiers at least because the Pulsipher reference does <u>not</u> teach, suggest or disclose collecting and sending the process identifiers as defined in the specification of the present application.

Furthermore, with respect to claim 16, it is respectfully submitted that the Pulsipher references does <u>not</u> teach, suggest or disclose the feature that the "task starters collect from the resources information regarding resource usage of the task and the task starter sends the information regarding resource usage <u>of the task with the process identifier to the resource manager</u>" at least because the Pulsipher reference does <u>not</u> teach, suggest or disclose that any

element, including the task server 806, collects the process identifier and forwards the process identifier to the resource manager. Furthermore, at best, the task server 806 represents "one or multiple group tasks" which are identified by the job ID and therefore the task server 806 would not be able to identify the information regarding resource usage of each individual task, but rather, at best, would be able to identify the resource usage of a group of tasks at least because the task server 806 of Pulsipher represents one or multiple group tasks identified by the job ID.

Accordingly, at least for the above reasons, the Examiner is respectfully requested to reconsider and withdraw the objection to the present claims 11 to 16 being anticipated in view of the Pulsipher reference.

(IV)   CLAIM REJECTIONS - 35 USC § 103

The Examiner had objected to claims 1 to 10, 17 and 19 to 23 under 35 U.S.C. 103(a) as being unpatentable over Pulsipher, et al. in view of the Applicant Admitted Prior Art (APA). The Examiner is respectfully requested to reconsider and withdraw this objection at least for the following reasons.

The applicant respectfully traverses the aforementioned rejection for the following reasons. According to MPEP § 2142 "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed Cir. 1991)). Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." "*All words in a claim must be considered* in

judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added.)

Applicant's claim 1 contains the limitation of "a task starter <u>associated with each task</u>, each task starter commencing, on an <u>associated resource</u>, the tasks sent from the resource manager, <u>collecting a process identifier from the associated resource, and sending the process identifier of the task to the resource manager</u>". At least for the reasons stated above with respect to claims 18 and 11, the Pulsipher reference does <u>not</u> teach, suggest or disclose any element which collects an identifier corresponding to the process identifier as defined in the present specification and sends the process identifier to the resource manager. As discussed above, the task server 806 of the Pulsipher reference is <u>not</u> associated with each task, but rather represents one or multiple groups of tasks, and, is <u>not</u> identified by a process identifier, but rather is identified by a job ID. Moreover, the Pulsipher reference does <u>not</u> teach, suggest or disclose that any element, including the task server 806, collects a process identifier. Moreover, the Pulsipher reference does <u>not</u> teach, suggest or disclose that any element, including the task server 806, sends a process identifier of the task to the resource manager. Therefore, it is respectfully submitted that the Pulsipher reference does <u>not</u> teach, suggest or disclose the feature of "a task starter associated <u>with each task</u>, each task starter commencing execution, on an associated resource of the task, <u>collecting a process identifier of the task</u> from the associated resource, and <u>sending the process identifier</u> the task to the resource manager".

Furthermore, the APA illustrated in Figure 2 of the present application also does <u>not</u> teach, suggest or disclose "a task starter associated with each task, each task starter commencing execution, a task starter associated with each task, each task starter commencing execution, on an associated resource, of the task collecting a process identifier of the task from the associated resource, and sending the process identifier of the task to the resource manager". Therefore, it is respectfully submitted that neither Pulsipher nor the APA teach, suggest or disclose the feature recited in present claim 1. Therefore, it is respectfully submitted that all of the claim limitations recited in present claim 1 are <u>not</u> taught, suggested or disclosed by the prior art. Furthermore, as clearly indicated above, all words in a claim must be considered in judging

the patentability of that claim against the prior art, and, when this test is used, and when the claim language is correctly interpreted in view of the specification as set out in *Philips v. AWH Corporation, supra,* it is respectfully submitted that the present claims define patentably distinguishable subject matter in view of both the Pulsipher reference and the APA. Therefore, the Examiner is respectfully requested to reconsider and withdraw the objection to present claim 1 being obvious in view of the Pulsipher reference and the APA.

Moreover, as stated in section MPEP § 2142, there "must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings" and "there must be a reasonable expectation of success". In the Office Action, it has been asserted that the Pulsipher reference does not specifically teach the use of a job launcher unit. Rather, as referred to at paragraph [0114] of the Pulsipher references, tasks "of a first job are submitted to a distributed resource management application 106 (FIG. 1) to be executed on a server farm 108 (FIG. 1) in parallel with tasks 110 of a second job". Accordingly, the distributed resource management application 106 of the Pulsipher reference collects the resources in the server farm 108. Furthermore, as stated in paragraph [0033] of Pulsipher "[t]ypically, the objects are passed through a distributed resource management (DRM) application 106 (Fig. 1) that schedules and manages work to be run on the multiple processors of the server farm". Therefore, the distributed resource management application 106 of the Pulsipher reference performs all of the functions associated with scheduling, dispatching and then collecting the exit status of the jobs. As such, the Pulsipher reference represents in some ways a system similar to the prior art system disclosed in Figure 1 of the present application utilizing a single resource and parallel application manager (illustrated by reference numeral 24 in the prior art) which collects the resources required to execute the task 4 of a parallel job, whether the job is parallel, sequential or a combination of both and then controls execution of the jobs. It is respectfully submitted that there would be no suggestion or motivation to combine the Pulsipher reference with the prior art system disclosed in Figure 2 of the present application at least because the resource management application 106 disclosed in the Pulsipher reference performs many functions which are common

and similar to the prior art PAM 24 and job launcher 18 units illustrated in Figure 2 of the present application and discussed in paragraph [0006] and [0007] of the present application. Therefore, there would be no suggestion or motivation to combine the Pulsipher reference with the APA illustrated in Figure 2 because this would result in much of the architecture illustrated in Pulsipher being redundant. Furthermore, even if the Pulsipher reference could be combined with the APA illustrated in Figure 2, which is not admitted but denied, even in this case, the prior art references, when combined, still would <u>not</u> teach, suggest or disclose the claim limitations recited in present claim 1 at least for the above reasons. Therefore, at least for these reasons, present claim 1 recites patentably distinguishable subject matter in view of the prior art, including the Pulsipher reference and the APA in the present application even with the suggestion or motivation to combine the references , which suggestion or motivation is <u>not</u> admitted but rather denied.

As claims 2 to 10 and 23 are directly or indirectly dependent from present claim 1, it is respectfully submitted that these claims also define patentably distinguishable subject matter in view of the cited references.

Similarly, the Examiner has objected to claims 17 and 19 to 22 as being obvious in view of Pulsipher and the APA. These claims are directly or indirectly dependent from independent claim 1 or independent claim 18 and therefore define patentably distinguishable subject matter at least for the reasons stated above. Moreover, these references recite the added limitation of a job launcher unit and, it is respectfully submitted, that it would not be obvious to combine a job launcher unit with a system disclosed in the Pulsipher reference at least for the reasons stated above. Therefore, these claims define patentably distinguishable subject matter for this reason also.

It is submitted that the foregoing amendments are such as to comply with the formal matters raised in the Official Action and this application is in a condition for allowance.

If for any reason the Examiner is of the view that this application is not in a condition for allowance, the Examiner is requested to telephone the undersigned at 1-416-961-

5000 so that an interview or telephone conference may be arranged to expedite allowance of this case.
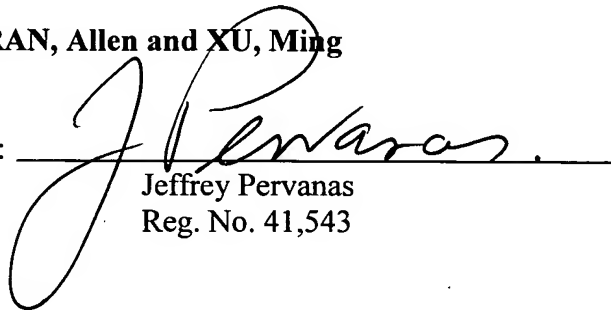
It is hereby petitioned under 37 CFR 1-1336 that the response term of this application be extended, if necessary, to a date which would include the filing date of the present amendment and the Commissioner is hereby authorized to charge any necessary extension fee to deposit account no. 18-1350, under an order number corresponding to attorney docket number P110501.

Favourable consideration and disposition is respectfully requested.

Respectfully requested

TRAN, Allen and XU, Ming

By: _____

Jeffrey Pervanas

Reg. No. 41,543

JP/cbo
Encl.
Ret. Ack. Card
Clean Copy of Revised Abstract
Encl. Amended Figures 1 to 5

IN THE DRAWINGS

Please replace present Figures 1 to 5 with amended Figures 1 to 5 enclosed herewith.